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REPORT ON EAST COAST FEVER

IN

ZANZIBAR.

BY

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ZANZIBAR.

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REPORT ON EAST COAST FEVER IN ZANZIBAR.

East Coast Fever is a disease known in many parts of Africa; it has caused great losses to stock owners in South Africa, British, German and Portuguese East Africa. The clinical symptoms of the disease are fever, constipation and great emaciation.

East Coast
Fever.
General.

The disease is conveyed from the sick to the sound by the agency of ticks. The carrying ticks are restricted to one family *Genus Rhipicephalus*. Three species are known to be implicated as agents in infection, *R. appendiculatus*, *R. simus*, *R. evertsi*: all these three are very prevalent in Zanzibar. The *post mortem* lesions are at times very typical, for instance infarcts in the kidney. (Such kidneys when found in the slaughter house, should be at once sent to the laboratory for microscopical identification.) The diagnosis of East Coast Fever depends upon finding with the aid of the microscope small bodies called "Koch's blue Bodies": when these are present in any organs, the diagnosis is certain.

The conditions appertaining to East Coast Fever in Zanzibar Town are curious. For a long time the Indian dairy owners have known of a disease, which existed in the sham-bas, and recognised the danger of allowing their cattle to go out to graze. At present the dairy cattle of Zanzibar are confined to the town, in none too salubrious quarters. In this measure the owners are right, as the entire

Prevalence in
Zanzibar
Town and
Provinces.

pasturage surrounding Zanzibar Town is infested with infected ticks. Lately I was told of one Banyan who allowed his cattle to go and graze; on visiting his shed, two calves showing typical lesions of East Coast Fever were found. This has also been the experience of certain Europeans interested in the cattle industry. I quote the experiences of one, who started in the trade, not knowing of the danger of East Coast Fever.

(1) A calf, dam Zanzibar cow, sire Indian bull, born in Zanzibar. This calf was taken to Mkivu, result death.

(2) Four young Indian calves born in Zanzibar, second generation. These were also taken outside the town; three of them came to a speedy end, the fourth was noticed to be sickening and was sent to the butcher for slaughter.

(3) Several Somali and German East African bulls were bought: all died in a period of two months.

An Indian owner had a magnificent bull for breeding purposes, on his becoming very vicious, owner decided to dispense with him as a stud animal. He was sent out into the shambas to do cart work, result death in a month.

Experiments carried out by the Zanzibar Government to ascertain the conditions of East Coast Fever.

This evidence having been collected, it was decided to start a series of experiments to test the infectivity of the proposed dairy site. It will be convenient to divide the experimental animals into two lots.

Bull No. 1. Benadir Coast. Bought in the Zanzibar market, had been three days on the island. December 15th 1910 put out on dairy

site. Died January 9th 1911. Diagnosis : East Coast Fever.

Cow No. 2. Indigeneous to Zanzibar Town. About three years old, had never been out to graze. December 31st 1910 put out on proposed site. Died 9th February 1911. Diagnosis : East Coast Fever.

Bull No. 3. From Benadir Coast. Bought in Zanzibar market, had only been landed a few days. January 29th 1911; put out on proposed site. Died February 21st 1911. Diagnosis : East Coast Fever.

It was next decided to test some of the other pasturages surrounding Zanzibar town. Six bulls were bought on the Italian mail. May 17th, 1911. They were at once taken to Prison Island.

Bull No. 4. From Benadir Coast. On Prison Island from May 17th 1911 to June 17th 1911.

June 17th 1911 removed from Prison Island and placed out to graze at Marahubi. Died July 21st; Diagnosis: East Coast Fever.

Bull No. 5. From Benadir Coast on Prison Island from May 17th 1911 to July 18th 1911.

July 18th 1911 taken to Mazizini died August 19th 1911. Diagnosis: East Coast Fever.

From these experiments, it is clearly shown Conclusion.
that East Coast Fever exists in Zanzibar and its immediate surroundings. Somali cattle do not arrive here carrying the disease, but contract it in Zanzibar. Prison Island is a clean pasturage, that is to say, no infected ticks exist there. I am given to understand that prior to May 17th 1911, no cattle had

been on Prison Island for several years. The question now arose, whether indigenous trek oxen possessed any immunity. The experiments were undertaken with this object in view.

Experiment
to prove im-
munity of in-
digenous
cattle.

A bull was bought at Mangwapwani, about four years old, which had never been out of Mangwapwani (?).

March 9th 1911 put out on proposed dairy site.

May 9th 1911 from dairy site to Marahubi.

July 5th 1911 handed over to stables for cart work.

This bull was returned to us on September 4th and up to date is quite well.

Another bull about three years old was bought at Makunduchi, August 7th, 1911; and put out on proposed dairy site. Quite well up to date.

This clearly proves that adult indigenous cattle have attained immunity against East Coast Fever, the reason of this, will be shown by observations made *re* East Coast Fever in other parts of Zanzibar Island.

Prevalence of
East Coast
Fever outside
Zanzibar
Town.

Makunduchi contains the greatest number of cattle in Zanzibar Island. A rough estimate of the number is about 1,500 head. On inspecting the adult cattle, no symptoms of disease could be found. After a few days, it was reported that the majority of calves suffered from a curious complaint called Uvimbi (meaning a swelling). The clinical symptoms of this disease are as follows. The glands at the base of the ear (subparotid) are markedly enlarged, temperature high from 104° to 106°.

general air of depression. The disease generally makes its appearance about a month after birth and persists for about 3 or 4 months. On puncturing these glands in several cases "Koch's blue Bodies" were found, thus proving the disease to be localised East Coast Fever. This form of East Coast Fever exists in Uganda and German East Africa, and is locally known as Amakebe and Matusi. Of all calves attacked in Makunduchi, about 50% die the remainder attain an active immunity.

Uvimbi or localised East Coast Fever in calves.

The native treatment consists in branding the affected glands, its efficacy seems doubtful.

This form of East Coast Fever appears to be spread throughout the island from North to South.

Note.—The two bulls used as experiments from Makunduchi and Mangapwani, have evidently recovered from the localised form of the disease.

As in all diseases, which are conveyed by ticks, seasons vary the mortality. After rain the ticks increase rapidly, during the dry season they decline.

The site selected for the dairy seems in every way most suitable. From the above experiments, it is clearly shown that East Coast Fever has to be contended with.

New site for Dairy.

The question resolves itself into tick extermination. This can be done by several methods.

Cleansing site of ticks.

1 Fencing and destocking. The site should be well fenced in, and no animals allowed to cross the pasturage. In 12 to 14 months all ticks will die out.

2 Fencing and allowing immune cattle (indigenous trek oxen, etc.) goats and sheep to use the pasturage. The infected ticks would lose their virus on the immune animals.

3 The construction of a dipping tank, and having all dairy cattle dipped every five days. In time all ticks would be destroyed by this simple method.

Proposed
method of
cleansing
dairy site.

I propose that a combination of these three methods should be tried. The site should be fenced in, all grass burnt down, goats and immune cattle turned on to the site for a short period, while sheds and equipment are being erected. When all is completed a second fence should be built surrounding the first at a distance of about 40 yards, to prevent other cattle coming close. A dipping tank should be erected, and all dairy cows dipped every five days. This should be controlled at first by a few experiments. Some dairy owner might be persuaded to try the site with a few cows; in case of an accident, he should be paid for his losses. This measure would probably give confidence to other cattle owners.

Method
adopted by
the Govern-
ment of Ger-
man East
Africa.

The above method is working well at Dar-es-Salam, Dr. Lichtenheld, Chief Veterinary Surgeon, German East Africa, kindly showed me the site. The dipping tank cost about £200.

(Preventive inoculation is being worked at, both in South Africa and British East Africa. A long period will probably elapse before an efficacious serum is found).

Preventive
inoculation.

If the above method works well, it might be useful to construct dipping tanks at Makunduchi, and try to eradicate the ticks. At present the method ought to answer, as all the

cattle are confined to Makunduchi. Once cleaned, it ought to remain free of ticks. As has been pointed out about 50% of the calves die, a heavy loss.

The importation of cattle into Zanzibar is to all intents and purposes free, very little control being exercised. The present quarantine pens in the Customs House are quite unsuitable. A very suitable place exists at Pigaduli; it is very easy of access from the sea, and could be fenced. An *abattoir* should be erected and the imported cattle, etc., slaughtered in quarantine. The present method of allowing free entry may at any moment cause a disaster. Rinderpest breaks out from time to time on the mainland; introduced in Zanzibar, its ravages would probably be serious. The Governments of British and German East Africa have recently forbidden the entry of Indian cattle and equines on account of Surra.

Quarantine
site in con-
nection with
abattoir.

The indigenous cattle are small with a prominent hump, neat well-formed fore and hind quarters. In nearly all of them, some Indian blood is present. They are well suited for draft purposes.

The Cattle of
Zanzibar
Island.

The cows are very poor milkers, broadly speaking very few of them produce more than a litre a day. This might be improved by better feeding. The majority of the cattle are turned out to graze, no additional food being given. At certain times during the dry season their sufferings from hunger are acute. The indigenous cows with good treatment might produce from 3 to 4 litres a day. It seems that the Zanzibar breed as milk pro-

Imported In-
dian Cattle.

ducers are poor, to improve this by selective breeding would be a very difficult undertaking, and in the end perhaps not effect much improvement.

Nearly all the dairy cows of Zanzibar Town are of Indian parentage. These cows are good milkers and well suited to the climate. Many diseases which are common to Africa, and would be injurious to European stock, they resist. The chief breeds of Indian-cows and their milk capacity is as follows:—

1	Kathiwar Cows	10 to 11	bottles of milk a day.
2	Sind	9	10
3	Socotra	6	7
4	Arab (Arabian)	7	8
5	Somali (Benadir)	7	8
6	Native of Zanzibar	1	3

The bottles used run 6 to the gallon.

These dairy cows are fed as follows in the best sheds.

Morning. Cassava, oil cake (sim-sim) and maize.

Evening. Cassava, and oil cake.

In addition to this each cow receives 20 lbs. of cut grass a day.



